2016

An Investigation of the Generalizability of Buoyancy from Academics to Athletics

Jackie Rae Victoriano
Louisiana State University and Agricultural and Mechanical College, jackiecalhoun1163@gmail.com

AN INVESTIGATION OF THE GENERALIZABILITY OF BUOYANCY FROM ACADEMICS TO ATHLETICS

A Thesis

Submitted to the Graduate Faculty of the
Louisiana State University and
Agricultural and Mechanical College
in partial fulfillment of the
requirements for the degree of
Master of Science

in

The School of Kinesiology

by
Jackie Victoriano
B.A., Louisiana State University, 2013
May 2016

ACKNOWLEDGEMENTS

I would like to thank Dr. Alex Garn, my mentor, for giving me the confidence, knowledge, and advice that I needed to make this possible, and for helping me acknowledge that everything "depends." I also want to extend my gratitude to all of my committee members, including Dr. Melinda Solmon, Dr. Birgitta Baker, and Dr. Kip Webster, for providing me with this opportunity and wonderful feedback. Finally, I want to thank my husband, Zach Calhoun, for his undying love and support, and my parents, Gaynell and Dennis Victoriano, for teaching me hard work, dedication, and the value of my education.

TABLE OF CONTENTS

ABSTRACT

Buoyancy, the ability of an individual to handle everyday setbacks, has been applied successfully to academics, and has implications for performance and well-being. The purpose of this investigation was to determine if the concept of buoyancy can be successfully applied to the domain of sports (i.e., athletic buoyancy). This study sought to examine the relationship between academic and athletic buoyancy, as well as the efficacy of five sport-oriented predictors (5Cs), confidence, coordination (planning), commitment, composure (anxiety), and control, on both athletic and academic buoyancy. Sport club athletes (N = 285) aged 18 to 31 years completed a one-time survey assessing their athletic and academic buoyancy, as well as each of the sport-oriented 5Cs. Internal consistency of each subscale was examined with Cronbach's alpha estimates. Correlations and multiple linear regressions examined the relationship between academic and athletic buoyancy and the predictive utility of the 5Cs on athletic and academic buoyancy. Results indicated that each subscale showed moderate internal consistency (all Cronbach's alphas > .70), and that academic and athletic buoyancy were moderately correlated (r = .51, p < .001). The 5Cs model accounted for 26% of the variance in athletic buoyancy (F(5,277) = 19.00, p < .001, R^2 = .26). Composure was a significant predictor in the model (β = .42, p < .001), while the other 5Cs were not: confidence (β = .12, p = .53), commitment (β = .11, p = .06), control (β = -.10, p = .08), and coordination (β = .09, p = .12). The sport-oriented 5Cs also significantly predicted 15% of variance in academic buoyancy, (F(5,276) = 10.03, p <.001), R^2 = .15. Confidence (β = .18, p < .01) and composure (β = .27, p < .001) were significant predictors in the second model. These results indicate the potential for the construct of buoyancy to be generalized from academics to athletics, and that a multidimensional buoyancy structure may be possible. Competitive sport anxiety negatively affects both academic and athletic

buoyancy, though the predictive influence varied by domain. These findings set the stage for the development of a comprehensive model of multidimensional buoyancy.

INTRODUCTION

The increasingly popular field of positive psychology has experienced a surge in research over the course of the last decade (Hart & Sasso, 2011; Simmons, 2013; Wong, 2011). Introduced in concept by Martin E. P. Seligman (1999), positive psychology attempts to provide researchers with a cohesive framework through which "to understand and build those factors that allow individuals, communities, and societies to flourish" (Seligman & Csikszentmihalyi, 2000, p.13). According to proponents of positive psychology, psychological research tends to focus on "negative emotions" because they indicate that something needs to be addressed (Seligman & Csikszentmihalyi, 2000). As Seligman and Csikszentmihalyi (2000) explain, the focus on negative emotions may have become the norm because positive emotions (i.e., positive psychology) go unnoticed. "Like the fish who is unaware of the water in which it swims," (Seligman & Csikszentmihalyi, 2000, p.13), positive emotions or qualities are not necessarily something that most people readily recognize because they are not likely to cause disruption in daily life. Positive psychology pushes for a more evenly distributed emphasis on both the positive and negative sides of psychology in research (Wong, 2011).

Despite its growing popularity, there are criticisms of positive psychology and research associated with it (e.g., Hart & Sasso, 2011; Simmons, 2013). Although he is a supporter of positive psychology, Wong (2011) explains that many topics of interest to positive psychology researchers have already been thoroughly studied, and that positive psychology tends to disregard the positive effects that negative emotions and events can have on a person. Another notable critique is that positive psychology boldly seeks to separate psychology into two sides: the positive and the negative (Simmons, 2013).

Despite these critiques, positive psychology proposes a unique path for those wishing to study successful individuals so that their personality traits, practices, and tendencies may be recognized, understood, and applied to others (Seligman & Csikszentmihalyi, 2000). Concepts from positive psychology have been applied in various contexts, including counseling (Grant & Palmer, 2015), theology (King & Whitney, 2015), sports (Lundqvist & Sandin, 2014), and of particular interest to this study, sports and academics (Malmberg, Hall, & Martin, 2013; Martin & Marsh, 2006, 2008a, 2009). The results of educational research indicate that concepts derived from positive psychology may be utilized to predict academic performance (Putwain & Daly, 2013) and better understand the emotional health of students (Miller, Connolly, & Maguire, 2013), both of which could be valuable resources in many contexts. This study will draw upon a particular concept derived from positive psychology that has been applied to education, academic buoyancy (Martin & Marsh, 2009).

Academic Resilience & Academic Buoyancy

A frequently studied concept in educational research is academic resilience (Martin, Colmar, Davey, & Marsh, 2010), which refers to a student's ability to overcome adverse and potentially severe circumstances that can negatively impact their education. Academic resilience is most relevant during situations such as persistent poor academic performance or living in poverty (Putwain, Connors, Symes, & Douglas-Osborn, 2012). Those with clinically diagnosed anxiety or depression may need to express resilient responses to those challenges, and students with higher academic resilience may respond more favorably than those with lower academic resilience to such severe circumstances (Martin & Marsh, 2009). This concept is useful for examining how students respond in the face of adversity, but in reality most students do not experience extreme or dramatic challenges during their normal, everyday school lives (Martin et

al., 2010; Martin & Marsh, 2008a, 2009). Academic resilience, therefore, may only reveal pertinent information about a small percentage of students who are affected by repetitive and excessively difficult circumstances (Martin & Marsh, 2008a).

In order to address a wider range of students than academic resilience allows for, Martin and Marsh (2008a) introduced the concept of academic buoyancy, which is defined as "students' ability to successfully deal with academic setbacks and challenges that are typical of the ordinary course of school life" (p. 53). Academic buoyancy allows a student to respond to an occasional bad grade on an assignment, small doses of stress and pressure, or potential dips in self-confidence (Martin & Marsh, 2008a, 2009). Most students will experience this type of adversity at some point in their academic careers; therefore, academic buoyancy is likely to be more commonly observed in or utilized by students than academic resilience (Martin & Marsh, 2008a, 2009).

Sources of Buoyancy

In a construct validation study, Martin and Marsh (2006) determined that there are five predictors of academic resilience, which have since been applied to academic buoyancy (Martin et al., 2010). Related to concepts from motivation theory and termed the "5Cs," these factors have been shown to predict academic resilience and academic buoyancy: "confidence (e.g., high self-efficacy; perceived competence), coordination (e.g., planning; self-regulation), commitment (effort; persistence), composure (low anxiety), and control (e.g., low uncertain; high locus of control)" (Martin et al., 2010, p. 476). The 5Cs have been proposed to be "a motivational set predictive of academic buoyancy" (Martin et al., 2010, p. 488), and each of them is psychological in nature. All of the 5Cs have been shown to be significant predictors of buoyancy (Martin et al., 2010). Confidence, commonly measured as self-efficacy (Martin & Marsh, 2009),

is an individual's belief that they can successfully complete a task. Coordination refers to an individual's beliefs about their preparation for a given task, such as goal setting and developing plans (Toering, Elferink-Gemser, Jonker, van Heuvelen, & Visscher, 2012). Commitment is defined by Martin and Marsh (2006) as "persistence," or the desire to continue engaging in a specific activity (p. 267). Composure refers to a level of low anxiety (Martin & Marsh, 2006). Control refers to uncertain control, or unknown control (Connell, 1985), which was originally used to explain why children "don't know why things happen to them" (p. 1040). Low uncertain control (higher feelings or understanding of control) has been shown to influence higher buoyancy (Martin et al., 2010).

Composure has consistently been found to be a strong predictor of buoyancy (Martin et al., 2010; Martin & Marsh, 2008a) in comparison to the other four predictors in this model. Martin et al. (2010) concluded in their study of the 5Cs that anxiety plays the largest role in academic buoyancy of the five predictors. This finding is supported in a study by Martin, Ginns, Brackett, Malmberg, and Hall (2013), where they found anxiety to be a significant negative predictor of academic buoyancy. Putwain and Daly (2013) found similar results in their study of how anxiety relates to academic buoyancy. They concluded that as long as a student possessed high levels of academic buoyancy and low to moderate levels of test anxiety, they could withstand the effects of test anxiety and at least maintain their academic performance.

Research like this could be useful for developing interventions that address low levels of buoyancy. For example, Martin and Marsh (2006, 2009) discuss the possibility of implementing educational policy changes that address the 5Cs to improve the wellbeing of students. Given the knowledge of the influence of the 5Cs on academic buoyancy, if a student possessed low levels of composure and coordination, but higher levels of confidence, commitment, and control, an

intervention could be designed to help that student develop their lower "Cs" and, therefore, improve their academic buoyancy. If there is potential for the development of interventions to address low buoyancy, then examining the generalizability of buoyancy to other domains could be a valuable line of research.

Sport Participation & Academic Buoyancy

For many people, school is one of the only outlets for sport participation that may be available. Therefore, it is important to consider the impact that sport participation may have on a child's academics. A commonly held belief is that extracurricular activities will take time and energy away from academics, which will lead to poor academic performance. However, a large body of research indicates that participating in sports has a positive relationship with academic achievement (Hartmann, 2008), though the impact may be small (Marsh, 1992; Marsh & Kleitman, 2003), and is certainly not completely understood (Miller, Melnick, Barnes, Farrell, & Sabo, 2005).

This positive relationship between sport participation and academic achievement may be related to buoyancy and the 5Cs. For example, according to Marsh and Kleitman (2003), participation in sports promoted improvements in psychological factors such as internal locus of control and self-esteem. Many individuals also believe that sports have the ability to teach general life lessons (Hartmann, 2008), such as how to plan ahead, which could lead to improvements in factors such as confidence, composure, and commitment. It may be that the 5Cs play a mediating role between sport participation and academic performance, and may explain some of the relationship. This relationship between sport participation and academic achievement also suggests the existence of a bridge between athletics and academics that can impact academic performance.

According to Hartmann (2008), the relationship between participation in sports and academic achievement is complicated, and varies greatly depending on demographic factors, such as gender and race, as well as the particular sport, the level at which the sport is played, and the context in which the sport is played. For example, an elite baseball player may experience different challenges to and effects on his academics if he is competing year-round in an effort to get recruited for the professional level compared to a recreational soccer player who only plays on the weekends. In fact, Hartmann (2008) discusses that it is very possible that sport performance can have a negative effect on academic achievement in certain contexts. Perhaps the baseball player would experience more positive effects on his academics if his academic buoyancy is high.

Despite the inconsistencies in findings and an incomplete understanding of the causal relationship between sport participation and academic achievement, the fact that there is a positive relationship indicates that there is some crossover effect between athletics and academics. Because sport participation has the potential to affect academics, understanding the relationships between athletics, academics, and buoyancy could prove to be important information, and may provide some explanation for the indirect relationship between sports participation and academic achievement.

From Academic Buoyancy to Athletic Buoyancy

Utilizing academic buoyancy research can assist teachers, parents, and school administrators in understanding what impacts students' ability to maximize their academic performance. This type of outcome is what positive psychology theories aim to accomplish. Based on the amount of knowledge gleaned from research completed on academic buoyancy in the last decade (Martin & Marsh 2008a, 2008b, 2009; Miller, Connolly, & Maguire, 2013;

Putwain et al., 2012), it is likely that this concept of "buoyancy" can be applied to other domains of life where performance is demanded, stress and anxiety levels are common, and improvements and leaning are goals.

In this study, parallels are drawn between academics and athletics with regard to the concept of buoyancy. Like students, athletes also struggle with day-to-day challenges, such as making errors in practice, fear of failure, coach-athlete relationships, and teammate relationships. Athletes must also contend with the different aspects of their sport that they may struggle with (e.g. offense, defense, coach-athlete relationship), just as students must handle different subjects in which they have different strengths and weaknesses. It is also common for athletes to experience anxiety before competition (Coudevylle, Ginis, Famose, & Gernigon, 2008; Kais & Raudsepp, 2005; Nicholls, Polman, & Levy, 2010), similar to what students might experience before an exam (Putwain & Daly, 2013). While research has investigated athletic competitive anxiety, the concept of "athletic buoyancy" has not yet been addressed. This provides researchers with an opportunity to study buoyancy in a domain with a very large population. The United States Census Bureau (2012) estimates that approximately 270 million Americans participated in sports in 2009. Research in a population this large has the potential to reveal aspects of buoyancy that may be unique to athletics. For the purpose of examining the generalizability of buoyancy from academics to athletics, the concept of athletic buoyancy is proposed. This study defines athletic buoyancy as an athlete's ability to respond effectively and positively to the daily challenges and setbacks they may encounter in an athletic context.

The Present Study

The purpose of this study was to examine the extent to which academic buoyancy generalizes to the athletic domain. Three main research questions were addressed:

1. Can academic buoyancy be generalized to the domain of sports as athletic buoyancy?
2. To what extent do the "5Cs" in sport predict athletic buoyancy?
3. To what extent do the "5Cs" in sport predict academic buoyancy?

The terms "sport" and "athletics" will be used interchangeably in this paper. Because buoyancy has yet to be investigated in the sport domain, this study will contribute to the literature regarding the generalizability of buoyancy to a novel context. A deeper understanding of the relationship between academic buoyancy and athletic buoyancy will also provide a stronger foundation for a more comprehensive predictive model for buoyancy, and opens the door to the investigation of both antecedents and outcomes of athletic buoyancy.

METHODS

Participants

Male (n = 164) and female (n = 121) sport club athletes (N = 285) from 14 different teams at a large university in the Southeastern United States participated in the study[1]. The athletes ranged in age from 18 to 31 years (M = 19.77, SD= 1.87 years). Of the participants, 81.4% identified as White/Caucasian, 7.4% Black/African American, 3.5% Hispanic/Latino/Mexican American, 3.2% Asian/Asian American, and 2.8% Multi-Racial. The remaining 1.5% of participants identified as American Indian/Alaska Native (n = 1), Native Hawaiian/Pacific Islander (n = 1), or Other (n = 2). For academic standing classification, 31.6% were freshmen, 21.1% were sophomores, 22.1% were juniors, 20.4% were seniors, and 1.8% were graduate students.

Table 1 provides an overview of the 14 teams involved with this study. Some teams were female or male only, while some teams were combined with both females and males. Male or female-only teams tended to have separate coaching staffs, schedules, and practices. Combined sport club teams (containing both the men and women's teams) often shared the same practice time and space, and at times, the same coaching staff. The composition of the coaching staff varied greatly among the teams. For example, Men's Lacrosse had a coaching staff composed of former lacrosse players and experienced outside (non-student) coaches. In contrast, the Powerlifting team had a coaching staff with only former team members functioning as coaches.

[1] A total of two participants were removed from the analyses because it was determined that one participant was a minor (i.e. < 18 years old), and the other failed to complete a substantial portion of the survey (i.e., > 50% missing data).

Table 1. Sport Club Overview

Team Make-up	Sport Team	Frequency $N = 285$	Percent
Male Only			
	Baseball	12	4.2
	Men's Lacrosse	30	10.5
	Men's Rugby	28	9.8
	Men's Soccer	10	3.5
	Men's Volleyball	15	5.3
	Men's Ultimate Frisbee	32	11.2
Female Only			
	Equestrian	27	9.5
	Women's Lacrosse	12	4.2
	Women's Rugby	23	8.1
	Women's Soccer	19	6.7
	Women's Volleyball	21	7.4
Combined			
	Powerlifting	30	10.5
	Tennis	11	3.9
	Water Polo	15	5.3

Measures

Buoyancy

The survey used in this study assessed athletes on both their academic and athletic buoyancy. The original Academic Buoyancy Scale (Martin & Marsh, 2008a, 2009) was included as the last portion of the survey to examine the relationship between the sport-oriented 5Cs and academic buoyancy.

Academic Buoyancy. The Academic Buoyancy Scale included four items, ranked on a seven-point Likert scale from 1 (Strongly Disagree) to 7 (Strongly Agree), and asked the participants, "How much do you agree with the following statements?" This section specifically stated to participants, "Please think about yourself as a *student* and your experiences in school," to avoid any confusion with the athletic buoyancy scale. The items were as follows: (1) "I'm

good at dealing with setbacks (e.g., bad mark, negative feedback on my work);" (2) "I don't let study stress get on top of me;" (3) "I think I'm good at dealing with schoolwork pressures;" (4) "I don't let a bad mark affect my confidence." The Academic Buoyancy Scale has been shown to be a predictor of several academic outcomes and demonstrates strong internal validity (Martin & Marsh, 2008a). This scale has also been extended for use in the workplace (Martin & Marsh, 2008b).

Athletic Buoyancy. To understand the athletes' ability to handle the everyday setbacks and challenges of sports participation, a modified Academic Buoyancy Scale (Martin & Marsh, 2008a) was obtained from Andrew J. Martin (personal communication, August 5, 2015) to assess athletic buoyancy. The four-item scale was modified to fit into an athletic context. Athletes were asked, "How much do you agree with the following statements?" The four items used in the survey were stated as follows: (1) "I don't let the stress of sport performance get on top of me;" (2) "I think I'm good at dealing with sporting performance pressures;" (3) "I don't let a bad performance at sport affect my confidence;" (4) "I'm good at dealing with setbacks at sport (e.g., negative feedback, poor result)."

Predictors of Buoyancy

To examine the extent to which the predictors of buoyancy generalize to the domain of athletics, the survey utilized sport-oriented constructs for each of the 5Cs: confidence, coordination, commitment, composure, and control (Martin et al., 2010; Martin & Marsh, 2006).

Confidence. Confidence was assessed with a six-item scale developed to measure perceived competence in the physical domain (Spray & Warburton, 2011). The items refer to three different perspectives of perceived competence: "mastery of the task," "self," and "others" (Spray & Warburton, 2011, p.517). Example items from the confidence subscale include (1) "I

am often able to successfully complete the goals I set in my sport" (mastery); (3) "I can perform tasks and skills in my sport better than I used to" (self); and (5) "I am a better performer than other players on my team" (others). Each item was ranked on a five-point Likert scale from 1 (Disagree a Lot) to 5 (Agree A Lot). This scale has demonstrated "acceptable internal consistency" (Cronbach's alpha > 0.70; Spray & Warburton, 2011, p. 521).

Coordination. The nine-item "planning" subscale from the Self-Regulation of Learning Self-Report Scale (SRL-SRS) was used to measure coordination (Toering et al., 2012). The SRL-SRS was designed "to measure self-regulation as a relatively stable attribute in multiple learning domains, such as sports, music, and school" (Toering et al., 2012, p. 25). This section asks participants, "How often do you do the following things in your sport?" Example items from this subscale include (2) "I think through in my mind the steps of a plan I have to follow;" (4) "I ask myself questions about what a problem requires me to do to solve it, before I do it;" and (8) "I clearly plan my course of action to solve a problem." Each item was ranked by the participant on a four-point Likert scale from 1 (Almost Never) to 4 (Almost Always). In their examination of the reliability and validity of this measure, Toering et al. (2012) found the planning subscale to have high internal consistency (Cronbach's alpha = .81).

Commitment. Commitment was measured with four items from the Athletes' Opinion Survey, which was developed to examine the "Sport Commitment Model" (Scanlan, Carpenter, Schmidt, Simons, & Keeler, 1993). Scanlan et al. (1993) defined sport commitment as "a psychological construct representing the desire and resolve to continue sport participation" (p. 6). The items were framed to be applied to any sport the participant may engage in, and were stated as follows for this study: (1) "How dedicated are you to playing your sport?" (2) "What would you be willing to do to keep playing your sport?" (3) "How hard would it be for you to quit your

sport?" (4) "How determined are you to keep playing your sport?" (Carpenter, Scanlan, Simons, & Lobel, 1993). Each of the four items chosen from the Athletes' Opinion Survey were ranked by the participant on a five-point Likert scale, with specific descriptions for each number as it related to the question asked. For example, scale answer choices for the first item ranged from 1 (Not dedicated at all) to 5 (Very dedicated). These questionnaire items have been shown to be valid and reliable (Scanlan et al., 1993).

Composure. Composure, or anxiety, (Martin & Marsh, 2006) was measured using the Sport Anxiety Scale-2 (SAS-2; Smith, Smoll, Cumming, & Grossbard, 2006). This 15-item scale has been shown to be valid and reliable across sports, genders, and even languages (Ramis, Viladrich, Sousa, & Jannes, 2015), and measures feelings of anxiety before and during sport competition (Grossbard, Smith, Smoll, & Cumming, 2009; Ramis et al., 2015; Smith et al., 2006). Subscale items fall into one of three categories: somatic anxiety (physiological responses), worry (thought or cognitive responses), or concentration disruption (Smith et al., 2006; Ramis et al., 2015). Each item is ranked by the athlete on a four-point Likert scale from 1 (Not At All) to 4 (Very Much), and asked athletes to "Circle the number that says how you *usually* feel before or while you compete in sports." Example items include (2) "My body feels tense" (somatic); (5) "I worry I will let others down" (worry); and (15) "I have a hard time focusing on what my coach tells me to do" (concentration disruption). A total anxiety score was produced to represent composure (Grossbard et al., 2009; Smith et al., 2006).

Control. Feelings of control were measured with a modified Academic Control Scale (Ruthig, Haynes, Stupnisky, & Perry, 2009), which was designed to examine students' beliefs about the relationship between their locus of control and their academic performance (Perry, Hladkyj, Pekrun, & Pelletier, 2001). This subscale consisted of eight items, which has

demonstrated internal consistency (Cronbach's alpha = .80; Perry et al., 2001), and is rated on a five-point Likert scale ranging from 1 (Disagree A Lot) to 5 (Agree A Lot). Minimal changes were applied to the original items because of their emphasis on performance; specifically, the word "course" was replaced with the word "sport" in this study. Example items include (1) "I have a great deal of control over my performance in this sport," and (8) "My performance will be determined by things beyond my control and there is little I can do to change that." Four of eight items were reverse coded as recommended by Perry and colleagues (2001).

Procedure & Data Collection

Approval from the Institutional Review Board was obtained prior to the start of data collection, and all participants provided written consent after receiving an explanation of the study and procedures. Participants were recruited with the help of the university recreation sport club administrators, who placed the researcher in contact with all sport club leaders, and requested their communication with the researcher regarding participation in the study. Contacting the researcher about participation in this study became a "task" for each club sport to complete, along with other preexisting tasks such as the completion of essential travel paperwork, which was given to them by the sport club coordinator. Each team and athlete was free to either accept or decline the offer to participate in the study after communication had been established. Teams that agreed to participate scheduled a specific date and time for the researcher to administer the survey. Participants completed the one-time 50-item questionnaire either at a team practice or meeting between September and November of 2015. Completion of the questionnaires took about fifteen minutes after consent was obtained and instructions were given.

Data Analysis

All statistical analyses were conducted using the Statistical Package for the Social Sciences (SPSS, version 23). Descriptive statistics and frequencies for each variable and sport club team were determined. All alphas were set to 0.05 a priori. Cronbach's alpha coefficients were obtained for each variable in the study (athletic buoyancy, confidence, coordination, commitment, composure, control, and academic buoyancy) in order to determine internal consistency (Cronbach, 1951).

Differences between groups were also used as a preliminary examination of the data. A one-way analysis of variance (ANOVA) was used to determine if responses from sport clubs were significantly different on athletic buoyancy, and a post-hoc test examined differences between individual sport clubs on athletic buoyancy.

A correlation matrix was produced to examine relationships between variables. Of particular interest to this study was: (a) the correlation between academic and athletic buoyancy (research question 1) and (b) how the 5Cs related to athletic buoyancy and academic buoyancy (research questions 2 and 3).

Simultaneous multiple linear regression models were conducted to further explore research questions 2 and 3. Specifically, the predictive utility of the 5Cs (independent variables) on athletic buoyancy (dependent variable model 1) and academic buoyancy (dependent variable model 2) were tested. The F-statistic and R^2 were used to determine effect size, and the strength and direction of the relationships were determined by standardized beta coefficients (β).

RESULTS

Internal Consistency

The internal consistency was determined for each variable, and evaluated using Cronbach's alpha estimates. Each variable was found to have moderate internal consistency (Cronbach's alphas > .70; Reynolds, Livingston, and Willson, 2009; Toering et al., 2012). Table 2 contains detailed information on Cronbach's alpha coefficient scores for each variable.

Descriptive Statistics & Frequencies

Descriptive statistics for each variable were calculated, and can be viewed in detail in Table 2. The mean score for the composure subscale ($M = 3.20$) was relatively high, indicating that the athletes, on average, did not report feeling overly anxious or tense prior to or during sport competition. Mean scores for the commitment subscale ($M = 4.47$) were very high, indicating that most athletes responded that they were highly committed to their sport; this may indicate a measurement error, which will be examined in the discussion. The other variables received moderate mean scores relative to their scoring system.

In addition to descriptive statistics, frequency tables were also generated for all demographic information. Of interesting note is that four of the fourteen teams, Men's Ultimate Frisbee (11.2%), Powerlifting (10.5%), Men's Lacrosse (10.5%) and Equestrian (9.5%), accounted for a large percentage of the total number of participants, which may have had an effect on the results.

Table 2. Means & Standard Deviations

Variable	Mean	Standard Deviation	Cronbach's Alpha
AthB	4.75	1.16	.78
Confidence	3.87	.55	.74
Coordination	2.99	.55	.88
Commitment	4.47	.64	.86
Composure	3.20	.58	.92
Control	4.12	.52	.75
AcB	4.62	1.32	.83

Note: AthB = athletic buoyancy, AcB = academic buoyancy. Each variable was ranked on a Likert scale with the following ranges: AthB (1-7), Confidence (1-5), Coordination (1-4), Commitment (1-5), Composure (1-4), Control (1-5), AcB (1-7)

ANOVA & Post-Hoc Analyses

A one-way ANOVA determined that there was a significant difference on athletic buoyancy based on sport club, $F(13,271) = 1.96$, $p = .024$, but a Tukey's post-hoc analysis did not show a specific significant difference between any two teams. Interestingly, the Men's Volleyball team was the only club to approach a significant difference on athletic buoyancy with Women's Lacrosse ($p = .08$) and Women's Rugby ($p = .06$).

Correlations

A correlation matrix was created to investigate the relationship between each variable and athletic buoyancy, and results can be found in Table 3. Confidence ($r = .29$, $p < .001$) and commitment ($r = .23$, $p < .001$) displayed significant and modest, positive relationships with athletic buoyancy. Composure ($r = .47$, $p < .001$) displayed a moderate, positive relationship with athletic buoyancy. As was expected, academic buoyancy and athletic buoyancy showed a moderate relationship ($r = .51$, $p < .001$), suggesting the two variables were related, but distinct from one another.

Table 3. Correlation Matrix

	AthB	Conf	Coor	Comm	Comp	Cont	AcB
AthB	–						
Conf	.293**	–					
Coor	.105	.283**	–				
Comm	.228**	.400**	.141*	–			
Comp	.465**	.323**	-.033	.229**	–		
Cont	.097	.207**	.176**	.305**	.290**	–	
AcB	.512**	.297**	.108	.183**	.322**	.066	–

Note: AthB = athletic buoyancy, Conf = confidence, Coor = coordination, Comm = commitment, Comp = composure, Cont = control, AcB = academic buoyancy.
** = $p < 0.01$, * = $p < 0.05$

Predictors of Buoyancy

The first multiple linear regression was conducted to explore the predictive utility of the 5Cs on athletic buoyancy (Table 4). The analysis found that the 5Cs model did significantly account for about 26% of the variance found in athletic buoyancy ($F(5,277) = 19.00$, $p < .001$, $R^2 = .26$). Composure was the only variable that was a significant predictor of athletic buoyancy ($\beta = .42$, $p < .001$). Confidence ($\beta = .12$, $p = .053$), commitment ($\beta = .11$, $p = .06$) coordination ($\beta = .09$, $p = .12$), and control ($\beta = -.10$, $p = .08$) did not contribute to the model.

Table 4. Regression Analysis – 5Cs on Athletic Buoyancy

Variable	B	Std. Error	β	*P*
Confidence	.250	.129	.119	.053
Coordination	.184	.117	.088	.115
Commitment	.198	.105	.110	.060
Composure	.849	.116	.422	.000
Control	-.221	.126	-.099	.082

Note: R = .505, $R^2 = .255$, adj. $R^2 = .242$, Std. error of the estimate = 1.00523

A second multiple linear regression was conducted to examine the effect that the sport-oriented 5Cs had on predicting academic buoyancy. This analysis found that the sport-oriented 5Cs did significantly predict about 15% academic buoyancy, ($F(5,276) = 10.03$, $p < .001$, $R^2 = .15$). In this model, both composure ($\beta = .27$, $p < .001$) and confidence ($\beta = .18$, $p = .007$) were found to be significant predictors, while coordination ($\beta = .07$, $p = .23$), commitment ($\beta = .06$, $p = .33$) and control ($\beta = -.08$, $p = .19$) were not significant predictors of academic buoyancy. Table 5 contains the details of this second multiple linear regression analysis.

Table 5. Regression Analysis – 5Cs on Academic Buoyancy

Variable	B	Std. Error	β	*P*
Confidence	.425	.157	.177	.007
Coordination	.173	.142	.072	.226
Commitment	.125	.128	.061	.329
Composure	.628	.142	.273	.000
Control	-.204	.154	-.080	.186

Note: R = .392, R^2 = .154, adj. R^2 =.138, Std. error of the estimate = 1.22403

DISCUSSION

The purpose of this study was to investigate the generalizability of the construct of buoyancy from academics (Martin & Marsh, 2008a, 2009) to athletics. Literature on buoyancy does touch on the idea of extending buoyancy beyond academics and into other performance-oriented domains, such as the workplace (Martin & Marsh, 2008b), but little to no research has been conducted to determine the generalizability of buoyancy into the domain of athletics. Considering the large numbers of individuals who participate in sports at some point in their lives, it is important to consider the effects that athletic buoyancy may have on their individual well-being, and potentially how this may affect their performance.

The first research question for this study was, "Can academic buoyancy be generalized to the domain of sports as athletic buoyancy?" The results seem to support the notion that buoyancy can be extended to athletics. First, results of the correlation analysis indicate that athletic buoyancy and academic buoyancy have some overlap in terms of their predictors, but that they are not the same construct ($r = .51$, $p < .001$). It is possible that the 5Cs model may predict a certain percentage of our "everyday buoyancy" (Malmberg et al., 2013; Martin & Marsh, 2008b), and that other factors, such as motivational factors, sport type and characteristics, or demographics help explain the remaining variance. If there is a presence of everyday buoyancy (trait-like), then a perhaps a certain amount of buoyancy may be predictable across domains (state-like), providing a foundation for domain-specific buoyancy. This opens the door to an interesting line of research that could have implications for performance and wellbeing. A better understanding of athletic buoyancy could also greatly impact coaches and coaching techniques, the role of the parent in athletics, and how the roles of student and athlete fit together.

The second research question for this study was, "To what extent do the '5Cs' in sport predict athletic buoyancy?" A regression analysis revealed that the 5Cs, modified to fit within an athletic context, were able to predict about 26% of the variance found in athletic buoyancy. Composure was the only significant predictor of athletic buoyancy in this study, which supports Martin and Marsh's (2008a) results that interventions targeting anxiety levels may be the most beneficial for improving buoyancy levels. This finding is consistent with previous research which shows that anxiety may explain the majority of variance in academic buoyancy (Martin & Marsh, 2006, 2008a). Future research into the relationship between anxiety and specific sports (e.g., Kais & Raudsepp, 2005) and how they relate to athletic buoyancy may be beneficial for developing interventions for athletes during particularly stressful or important points in their careers.

These results are consistent with those in previous research that indicate the 5Cs significantly predict academic buoyancy (Martin et al., 2010; Martin & Marsh, 2006, 2008a). Confidence, coordination, commitment, and control were not found to significantly predict academic buoyancy in the regression model. In a study which attempted to apply academic buoyancy to the workplace (Martin & Marsh, 2008b), the researchers determined that there are likely some differences between the workplace and other venues, such as a school setting; therefore, other factors may need to be taken into consideration. The predictors used in this study may be important factors to consider, but perhaps the particular items and scales utilized to measure them need to be adjusted. Additionally, maybe other motivational factors (Ryan & Deci, 2000) need to be taken into consideration in order to better understand the mechanisms behind athletic buoyancy.

In addition to addressing the first two research questions, this study also used the sport-oriented 5Cs to explore their predictive effect on academic buoyancy (research question 3), which was reported by the athletes at the end of the survey. Results showed that the sport-oriented 5Cs model did in fact predict about 15% of reported academic buoyancy. This finding implies that there may be connections between an individual's athletic and academic buoyancy, and that participation in sports may affect academic buoyancy either positively or negatively. For example, if an individual has low composure (high anxiety) in sport, this may negatively affect their academic buoyancy as well. It is also possible that an individual with trait anxiety may be more likely to experience decrements in academics, athletics, and perhaps other domains with similar environmental characteristics (Martin & Marsh, 2008a). Regardless, this finding supports the idea of the generalizability of buoyancy to different domains, and introduces the possibility of a more complex model of interacting buoyancies.

Limitations

There were several limitations to this study. First, the testing conditions were not ideal for survey collection. Times and dates were scheduled with each team to complete the survey, but oftentimes this occurred either immediately before or following a team practice or meeting. Because of this timing, athletes were eager to either start practice or leave to go home, and may not have considered each item as carefully as if they would have in a more comfortable and better-timed meeting. Second, all results were self-reported; therefore, there is a great level of subjectivity with the responses from the athletes.

Third, the measures utilized did show internal consistency, and the subscales utilized have established validity, but the validity of the measure utilized in this study as a whole was not investigated for this study. Fourth, the subscale for commitment seemed to reveal that all athletes

surveyed were very committed to their sport. While this may be true, it is more likely that there is a fundamental issue with asking someone to report how committed they are to an activity that they choose to participate in, such was the case in this study. Further research into this particular subscale may be helpful in future research.

Fifth, in addition to commitment, the subscale for confidence may also have been an issue. In previous research (Martin et al., 2010; Martin & Marsh, 2008a) confidence was measured via self-efficacy, while this study measured confidence via perceived competence. In Nicholls et al.'s (2010) study, the researchers examined the relationship between coping self-efficacy and anxiety in athletes, and found that there was a relationship between athletes' subjective coping self-efficacy and how they perceived their performance. It may be worthwhile to consider utilizing a self-efficacy scale to measure confidence so that the results of the athletic buoyancy scale more closely line up with the original Academic Buoyancy Scale (Martin & Marsh, 2008a, 2009) for better comparisons.

Future Research

This study supports the idea that buoyancy can be generalized, and further studies into athletic buoyancy are needed. First, more research into the predictors of athletic buoyancy is necessary for developing a holistic picture of the model. As this research shows, the 5Cs only account for about one-quarter of the variance. Second, research is needed to understand the impact that different sports and sport types may have on athletic buoyancy. Along these lines, research into the "level" or intensity of sport participation (i.e., play for fun, elite level play, etc.) and how it relates to athletic buoyancy could be revealing. Third, the creation of a valid measure of athletic buoyancy and its predictors is needed. While each of the subscales was found to be

internally consistent, validity testing on the athletic buoyancy measure as a whole should be conducted to improve its usefulness and meaningfulness.

Fourth, an investigation into the relationship between various motivational constructs, specifically self-regulation (Ryan & Deci, 2000), could help with understanding the unsystematic variance in these results. Fifth, research on the sport-specific nature of athletic buoyancy should be investigated. While Malmberg et al. (2013) concluded that academic buoyancy is likely not specific to individual school subjects (i.e., Math, English, etc.), it would be interesting to investigate the potential for athletic buoyancy to be sport specific (i.e., football, tennis, golf, etc.), or specific to whether it is a team or individual sport. Lastly, as Martin and Marsh (2009) explain, "there is, then, a need to collect data to shed light on *critical events* in which academic buoyancy and resilience are required and the students experiencing these events" (p. 362). In other words, there is a need to determine the threshold at which an individual goes from needing to be buoyant, to needing to be resilient to effectively face their challenges.

Overall Conclusions

The purpose of this study was to investigate the generalizability of buoyancy from academics to athletics, and to examine the possible predictors of buoyancy in an athletic domain. Findings indicated that athletic buoyancy and academic buoyancy are two distinct, but related, constructs, which share different associations with the five predictors of buoyancy (confidence, coordination, commitment, composure, and control). The sport-oriented 5Cs model was able to explain about 26% of the variance found in athletic buoyancy, so further research is needed to better understand the variance left unaccounted for. Additionally, the sport-oriented 5Cs were able to predict about 15% of the variability found in academic buoyancy, suggesting links between participation in sports and academics. This study opens many possibilities for an

interesting line of research that could benefit not just athletes, but also expand the understanding of the generalizability of buoyancy to other domains, and the influences on human performance, adaptability, and well-being in a variety of contexts.

REFERENCES

Carpenter, P. J., Scanlan, T. K., Simons, J. P., & Lobel, M. (1993). A test of the sport commitment model using structural equation modeling. *Journal of Sport & Exercise Psychology, 15*, 119-133.

Connell, J. P. (1985). A new multidimensional measure of children's perceptions of control. *Child Development, 56*, 1018-1041.

Coudevylle, G. R., Ginis, K. A. M., Famose, J., & Gernigon, C. (2008). Effects of self-handicapping strategies on anxiety before athletic performance. *The Sport Psychologist, 22*, 304-315.

Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika, 16*, 297-334.

Grant, A. M., & Palmer, S. (2015). Integrating positive psychology and coaching psychology into counselling psychology. *Counselling Psychology Review, 30*, 22-25.

Grossbard, J. R., Smith, R. E., Smoll, F. L., & Cumming, S. P. (2009). Competitive anxiety in young athletes: Differentiating somatic anxiety, worry, and concentration disruption. *Anxiety, Stress, & Coping, 22*, 153-166.

Hart, K. E., & Sasso, T. (2011). Mapping the contours of contemporary positive psychology. *Canadian Psychology, 52,* 82-92.

Hartmann, D. (2008). *High school sports participation and educational attainment: Recgonizing, assessing, and utilizing the relationship*. Los Angeles: LA84 Foundation.

Kais, K., & Raudsepp, L. (2005). Intensity and direction of competitive state anxiety, self-confidence and athletic performance. *Kinesiology, 37*, 13-20.

King, P. E., & Whitney, W. B. (2015). What's the "positive" in positive psychology? Teleological considerations based on creation and *Imago* doctrines. *Journal of Psychology & Theology, 43*, 47-59.

Lundqvist, C., & Sandin, F. (2014). Well-being in elite sport: dimensions of hedonic and eudaimonic well-being among elite orienteers. *The Sport Psychologist, 28*, 245-254.

Malmberg, L., Hall, J., & Martin, A. J. (2013). Academic buoyancy in secondary school: Exploring patterns of convergence in English, mathematics, science, and physical education. *Learning and Individual Differences, 23*, 262-266.

Marsh, H. W. (1992). Extracurricular activities: Beneficial extension of the traditional curriculum or subversion of academic goals? *Journal of Educational Psychology, 84*, 553-562.

Marsh, H. W., & Kleitman, S. (2003). School athletic participation: Mostly gain with little pain. *Journal of Sport & Exercise Psychology, 25*, 205-228.

Martin, A. J., Colmar, S. H., Davey, L. A., & Marsh, H. W. (2010). Longitudinal modelling of academic buoyancy and motivation: Do the '5Cs' hold up over time? *British Journal of Educational Psychology, 80*, 473-496.

Martin, A. J., Ginns, P., Brackett, M. A., Malmberg, L., & Hall, J. (2013). Academic buoyancy and psychological risk: Exploring reciprocal relationships. *Learning and Individual Differences, 27*, 128-133.

Martin, A. J., & Marsh, H. W. (2006). Academic resilience and its psychological and educational correlates: A construct validity approach. *Psychology in the Schools, 43*, 267-281.

Martin, A. J., & Marsh, H. W. (2008a). Academic buoyancy: towards an understanding of students' everyday academic resilience. *Journal of School Psychology, 46*, 53-83.

Martin, A. J., & Marsh, H. W. (2008b). Workplace and academic buoyancy: Psychometric assessment and construct validity amongst school personnel and students. *Journal of Psychoeducational Assessment, 26*, 168-184.

Martin, A. J., & Marsh, H. W. (2009). Academic resilience and academic buoyancy: Multidimensional and hierarchical conceptual framing of causes, correlates and cognate constructs. *Oxford Review of Education, 35*, 353-370.

Miller, K. E., Melnick, M. J., Barnes, G. M., Farrell, M. P., & Sabo, D. (2005). Untangling the links among athletic involvement, gender, race, and adolescent academic outcomes. *Sociology of Sport Journal, 22*, 178-193.

Miller, S., Connolly, P., & Maguire, L. K. (2013). Wellbeing, academic buoyancy and educational achievement in primary school students. *International Journal of Educational Research, 62*, 239-248.

Nicholls, A. R., Polman, R., & Levy, A. R. (2010). Coping self-efficacy, pre-competitive anxiety, and subjective performance among athletes. *European Journal of Sport Science, 10*, 97-102.

Perry, R. P., Hladkyj, S., Pekrun, R. H., & Pelletier, S. T. (2001). Academic control and action control in the achievement of college students: A longitudinal field study. *Journal of Educational Psychology, 93*, 776-789.

Putwain, D. W., Connors, L., Symes, W., & Douglas-Osborn, E. (2012). Is academic buoyancy anything more than adaptive coping? *Anxiety, Stress, & Coping, 25*, 349-358.

Putwain, D. W., & Daly, A. L. (2013). Do clusters of test anxiety and academic buoyancy differentially predict academic performance? *Learning and Individual Differences, 27*, 157-162.

Ramis, Y., Viladrich, C., Sousa, C., & Jannes, C. (2015). Exploring the factorial structure of the sport anxiety scale-2: Invariance across language, gender, age and type of sport. *Psicothema, 27*, 174-181.

Reynolds, C. R., Livingston, R. B., & Willson, V. (2009). *Measurement and assessment in education.* Upper Saddle River, NJ: Pearson Education, Inc.

Ruthig, J. C., Haynes, T. L., Stupnisky, R. H., & Perry, R. P. (2009). Perceived academic control: Mediating the effects of optimism and social support on college students' psychological health. *Social Psychology of Education, 12*, 233-249.

Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist, 55*, 68-78.

Scanlan, T. K., Carpenter, P. J., Schmidt, G. W., Simons, J. P., & Keeler, B. (1993). An introduction to the sport commitment model. *Journal of Sport & Exercise Psychology, 15*, 1-15.

Seligman, M. E. P. (1999). The president's address. *American Psychologist, 54*, 559-562.

Seligman, M. E. P., & Csikszentmihalyi, M. (2000). Positive psychology. *American Psychologist, 55,* 5-14.

Simmons, J. (2013). Positive psychology as a scientific movement. *The International Journal of Science in Society, 4*, 43-52.

Smith, R. E., Smoll, F. L., Cumming, S. P., & Grossbard, J. R. (2006). Measurement of multidimensional sport performance anxiety in children and adults: The sport anxiety scale-2. *Journal of Sport & Exercise Psychology, 28*, 479-501.

Spray, C. M., & Warburton, V. E. (2011). Temporal relations among multidimensional perceptions of competence and trichotomous achievement goals in physical education. *Psychology of Sport and Exercise, 12*, 515-524.

Toering, T., Elferink-Gemser, M. T., Jonker, L., van Heuvelen, M. J. G., & Visscher, C. (2012). Measuring self-regulation in a learning context: Reliability and validity of the self-regulation of learning self-report scale (SRL-SRS). *International Journal of Sport and Exercise Psychology, 10*, 24-38.

U.S. Census Bureau. (2012). *Participation in Selected Sports Activities: 2009.* Retrieved January 12, 2015, from https://www.census.gov/compendia/statab/2012/tables/12s1249.pdf

Wong, P. T. P. (2011). Positive psychology 2.0: Towards a balanced interactive model of the good life. *Canadian Psychology, 52*, 69-81.

APPENDIX A
ATHLETIC BUOYANCY SURVEY

Athletic Buoyancy

Sport Club Name: _____ Date: _____

Athlete Age (please write): _____ Gender: _____ Male _____ Female

Years participated in this sport club: _____

Grade Classification (Please circle): Freshman Sophomore Junior Senior Grad Student

Ethnicity (Please check the one which you most identify with):

_____ Black/African American _____ Hispanic/Latino/Mexican American

_____ White/Caucasian _____ Asian/Asian American

_____ American Indian/Alaska Native _____ Native Hawaiian/Pacific Islander

_____ Multi-Racial Other (please specify) _____

Instructions: The following sections contain statements that refer to your experiences as an athlete in your sport as opposed to any other particular situation. Please read the directions for each statement and circle your responses.

Athletic Buoyancy

How much do you agree with the following statements?	Strongly Disagree	Disagree	Disagree Somewhat	Neither Agree nor Disagree	Agree Somewhat	Agree	Strongly Agree
1. I don't let the stress of sport performance get on top of me.	1	2	3	4	5	6	7
2. I think I'm good at dealing with sporting performance pressures.	1	2	3	4	5	6	7
3. I don't let a bad performance at sport affect my confidence.	1	2	3	4	5	6	7
4. I'm good at dealing with setbacks at sport (eg. negative feedback, poor result)	1	2	3	4	5	6	7

How much do you agree with the following statements?	Disagree A Lot	Disagree	Neither Agree nor Disagree	Agree	Agree A Lot
1. I am often able to successfully complete the goals I set in my sport.	1	2	3	4	5
2. I can execute the strategies that my coach calls for effectively.	1	2	3	4	5
3. I can perform tasks and skills in my sport better than I used to.	1	2	3	4	5
4. I am better at many aspects of sport than I used to be.	1	2	3	4	5
5. I am a better performer than other players on my team.	1	2	3	4	5
6. I am one of the best performers on my team.	1	2	3	4	5

How often do you do the following things in your sport?	Almost Never	Sometimes	Often	Almost Always
1. I determine how to solve a problem before I begin.	1	2	3	4
2. I think through in my mind the steps of a plan I have to follow.	1	2	3	4
3. I try to understand the goal of a task before I attempt to answer.	1	2	3	4
4. I ask myself questions about what a problem requires me to do to solve it, before I do it.	1	2	3	4
5. I imagine the parts of a problem I still have to complete.	1	2	3	4
6. I carefully plan my course of action to solve a problem.	1	2	3	4
7. I figure out my goals and what I need to do to accomplish them.	1	2	3	4
8. I clearly plan my course of action to solve a problem.	1	2	3	4
9. I develop a plan for the solution of a problem.	1	2	3	4

Please rate your responses to each question on a scale from 1 to 5.					
1. How dedicated are you to playing your sport?	1	2	3	4	5
	Not dedicated at all				Very dedicated

2. What would you be willing to do to keep playing your sport?	1 Nothing	2	3	4	5 A lot of things
3. How hard would it be for you to quit your sport?	1 Not hard at all	2	3	4	5 Very hard
4. How determined are you to keep playing your sport?	1 Not determined at all	2	3	4	5 Very determined

Circle the number that says how you *usually* feel before or while you compete in sports.	Not At All	A Little Bit	Pretty Much	Very Much
1. It is hard to concentrate on the game.	1	2	3	4
2. My body feels tense.	1	2	3	4
3. I worry that I will not play well.	1	2	3	4
4. It is hard for me to focus on what I am supposed to do.	1	2	3	4
5. I worry I will let others down.	1	2	3	4
6. I feel tense in my stomach.	1	2	3	4
7. I lose focus on the game.	1	2	3	4
8. I worry that I will not play my best.	1	2	3	4
9. I worry that I will play badly.	1	2	3	4
10. My muscles feel shaky.	1	2	3	4
11. I worry that I will mess up during the game.	1	2	3	4
12. My stomach feels upset.	1	2	3	4
13. My muscles feel tight because I am nervous.	1	2	3	4
14. I cannot think clearly during the game.	1	2	3	4
15. I have a hard time focusing on what my coach tells me to do.	1	2	3	4

How much do you agree with the following statements?	Disagree A Lot	Disagree	Neither Agree nor Disagree	Agree	Agree A Lot
1. I have a great deal of control over my performance in this sport.	1	2	3	4	5
2. The more effort I put into this sport, the better I will do in it.	1	2	3	4	5
3. No matter what I do, I can't seem to do well in this sport.	1	2	3	4	5
4. I see myself as responsible for my performance.	1	2	3	4	5
5. How well I do in this sport is often the luck of the draw.	1	2	3	4	5
6. There is little I can do about my performance in this sport.	1	2	3	4	5
7. When I do poorly in this sport, it is usually because I haven't given it my best effort.	1	2	3	4	5
8. My performance will be determined by things beyond my control and there is little I can do to change that.	1	2	3	4	5

For this section, please think about yourself as a ***student*** and your experiences in school.							
How much do you agree with the following statements?	Strongly Disagree	Disagree	Disagree Somewhat	Neither Agree nor Disagree	Agree Somewhat	Agree	Strongly Agree
1. I'm good at dealing with setbacks (e.g., bad mark, negative feedback on my work).	1	2	3	4	5	6	7
2. I don't let study stress get on top of me	1	2	3	4	5	6	7
3. I think I'm good at dealing with schoolwork pressures.	1	2	3	4	5	6	7
4. I don't let a bad mark affect my confidence.	1	2	3	4	5	6	7

You are finished, thanks for participating!

APPENDIX B
IRB APPROVAL

ACTION ON EXEMPTION APPROVAL REQUEST

Institutional Review Board
Dr. Dennis Landin, Chair
130 David Boyd Hall
Baton Rouge, LA 70803
P: 225.578.8692
F: 225.578.5983
irb@lsu.edu | lsu.edu/irb

TO: Jackie Victoriano
Kinesiology

FROM: Dennis Landin
Chair, Institutional Review Board

DATE: June 26, 2015

RE: **IRB# E9401**

TITLE: An Investigation of the Generalizability of Buoyancy from Academics to Athletics

New Protocol/Modification/Continuation: New Protocol

Review Date: 6/26/2015

Approved X **Disapproved**_____

Approval Date: 6/26/2015 **Approval Expiration Date:** 6/25/2018

Exemption Category/Paragraph: 2a, b

Signed Consent Waived?: No

Re-review frequency: (three years unless otherwise stated)

LSU Proposal Number (if applicable):

Protocol Matches Scope of Work in Grant proposal: (if applicable)

By: Dennis Landin, Chairman _____

PRINCIPAL INVESTIGATOR: PLEASE READ THE FOLLOWING –
Continuing approval is CONDITIONAL on:

1. Adherence to the approved protocol, familiarity with, and adherence to the ethical standards of the Belmont Report, and LSU's Assurance of Compliance with DHHS regulations for the protection of human subjects"
2. Prior approval of a change in protocol, including revision of the consent documents or an increase in the number of subjects over that approved.
3. Obtaining renewed approval (or submittal of a termination report), prior to the approval expiration date, upon request by the IRB office (irrespective of when the project actually begins); notification of project termination.
4. Retention of documentation of informed consent and study records for at least 3 years after the study ends.
5. Continuing attention to the physical and psychological well-being and informed consent of the individual participants, including notification of new information that might affect consent.
6. A prompt report to the IRB of any adverse event affecting a participant potentially arising from the study.
7. Notification of the IRB of a serious compliance failure.
8. **SPECIAL NOTE:**

"All investigators and support staff have access to copies of the Belmont Report, LSU's Assurance with DHHS, DHHS (45 CFR 46) and FDA regulations governing use of human subjects, and other relevant documents in print in this office or on our World Wide Web site at http://www.lsu.edu/irb

VITA

Jackie Victoriano, a Louisiana native, attended Louisiana State University in Baton Rouge, LA, and received a Bachelor of Arts degree in Anthropology in May of 2013. She continued her education at LSU, where she studied sport pedagogy and sport psychology. In August, 2014, Victoriano accepted a position as a Graduate Assistant in Fitness and Wellness with LSU University Recreation, and in August, 2015, she accepted a position as a Graduate Teaching Assistant in the LSU School of Kinesiology. She intends to continue her education in the Pedagogy and Psychological Sciences PhD program to pursue a career in research and teaching in academia.